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# ARNOLD ARBORETUM

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## BULLETIN OF POPULAR INFORMATION

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**Effects of the Severe Winter.** The winter of 1917-18 has been one of the severest in New England of which there is any record. In December when the ground was without a covering of snow the thermometer did not rise here from above zero for nearly a week with a minimum of 17° below. There was little snow at any time during the winter, and the ground, which froze to a depth of from five to seven feet, was not clear of frost until after the first of April. Abundant rains late in the summer and in the early autumn, and the fact that the cold has been continuous through the winter, without periods of warm weather, which in this region often excite dangerous vegetative activity, have enabled many plants to survive the extreme cold which under less favorable conditions would probably have destroyed them. Still it seems safe to predict that any tree or shrub which has lived here through the past winter will be able to resist successfully a Massachusetts winter. The condition of the plants in the Arboretum at this time is of general interest therefore as an indication of the trees and shrubs of recent introduction which can be successfully grown in this climate. It must, however, be remembered that local conditions, that is conditions of soil, position, moisture and dryness influence the hardiness of plants, and that a tree which succeeds in the Arboretum might not be hardy in another garden in the same general region.

The injuries to the Arboretum collections caused by the winter have not on the whole been as great as we had every reason to fear three months ago. The Conifers which have been killed are the glaucous-leaved Mt. Atlas Cedar (*Cedrus atlantica glauca*) which has been kept alive here for several years in a protected position; young plants of

the Spanish Fir (*Abies Pinsapo*) which has been killed before in the Arboretum; *Abies magnifica* of the California Sierra Nevada; *Abies cephalonica* var. *appolinis* from the mountains of Greece; *Picea Sargentiana*, one of the new Spruces from western China, and nearly every plant in a large collection of the short-leaved Pine of the eastern United States (*Pinus echinata*). These Pines were raised at the Arboretum twenty years ago from seeds gathered on Staten Island, New York, the northern limit of the range of this tree, and appeared to be perfectly hardy until this year. On several conifers the buds are uninjured and are beginning to swell, although the leaves have been more or less browned by the cold and will soon fall. Conifers injured in this way will probably recover, although their growth for the year will be necessarily checked. Among the trees with injured leaves and uninjured buds are the Cedars of Lebanon from the Anti-Taurus in Asia Minor which have been growing in the Arboretum for sixteen years without protection, and which it was hoped would be able to support the worst conditions New England winters could offer. Other conifers with injured leaves are the Sugar Pine (*Pinus Lambertiana*) from the Sierra Nevada of California, the Mexican White Pine (*Pinus Ayacahuite*), the Chinese Hemlock (*Tsuga chinensis*) which has lost most of its top, and *Abies cephalonica* from the islands of Greece. One or two specimens of this tree will probably not recover. The leaves of the California Incense Cedar (*Libocedrus decurrens*), of *Abies grandis*, of *Abies amabilis* and of the Hemlock of the northwest coast (*Tsuga heterophylla*) are slightly injured. The native White Cedar (*Chamaecyparis thyoides*) is badly hurt and some of the plants will probably die. The Red Spruce (*Picea rubra*) from northern New England has suffered badly, as have the plants of the upright form of *Juniperus communis* from central Massachusetts. The leaves of *Abies amabilis*, too, from the Cascade Mountains of Oregon are slightly browned, as are those of several plants of the Japanese *Abies sachalinense*. On a few of the plants of the Chinese White Pine (*Pinus Armandi*), of the Japanese *Pinus densiflora* and *P. Thunbergii*, and of the Chinese *Pinus sinensis* var. *yunnanensis* and var. *denudata* the leaves are also brown. There is no reason, however, to doubt that these will all recover. It is interesting that, with the exception of four exotic conifers, three of which have been kept alive in the Arboretum with much difficulty and have now perished, the most serious damage of the winter to conifers has been to four native species, *Picea rubra*, *Pinus echinata*, *Chamaecyparis thyoides* and *Juniperus communis*. All the new Spruces and Firs from western China, with the exception of *Picea Sargentiana*, are uninjured, as are practically all the Chinese Pines. Uninjured, too, are the Carolina Hemlock (*Tsuga caroliniana*) the western Arbor Vitae (*Thuja plicata*), and the Spanish Pine (*Pinus nigra tenuifolia*) which, judging by the climate of the regions where these trees grow naturally might well have suffered from the cold of the past winter.

Of the new trees with deciduous leaves introduced by the Arboretum from China the following are uninjured: all the Oaks, Elms, Birches, Nettle-trees, Beeches, many of the Cherries, the Pears and Apples,



*Davidia*, *Eucommia*, and *Ehretia acuminata*. As space permits reports on the losses caused by the winter in other groups of plants will appear in later issues of these bulletins.

**Early-flowering Shrubs.** Fortunately frost has not injured this spring the buds of many of the trees and shrubs which open their flowers in April and several of these have been unusually fine this year and have remained in good condition for a longer time than usual. After some of the Willows the earliest shrubs in the Arboretum to bloom this year were the Buffalo Berry (*Shepherdia argentea*) and the Leatherwood (*Dirca palustris*). The latter began to bloom on the 7th of April, nearly three weeks earlier than last year, and unfaded flowers are still to be seen on this eastern American shrub. A large group of these plants on the right-hand side of the Bussey Hill Road is one of the interesting early spring features of the Arboretum. The flower-buds of garden Peach-trees have been generally killed in Massachusetts by the cold of the winter, but the wild Peach-tree of northern China (*Prunus Davidiana*) opened its uninjured flower-buds in the Arboretum on the 15th of April. This is an attractive small tree with erect branches and lustrous red-brown bark. As a flowering tree in this climate, however, it is hardly worth a place in gardens for the flowers open so early that they are ruined by late frosts. The fruit is small and of no value, but pomologists are interested in this tree as a stock on which to work the common Peach-tree for it is hardy north of the region where Peaches flourish.

**Early-flowering Rhododendrons.** The bright rose-colored flowers of the Siberian and Mongolian *Rhododendron dahuricum* opened this year as early as the 10th of April and remained in good condition until the end of the month. It is a small shrub with dark green leaves which in this climate remain on the branches until late in the winter, and it would be a good garden plant here if the flowers were not so often ruined by late frosts. There is a variety *sempervirens* with more persistent leaves and darker-colored flowers which has bloomed this year with the species on the upper side of Azalea Path. In the Rhododendron Collection at the base of Hemlock Hill a group of a hybrid of *R. dahuricum* with the Himalayan *R. ciliatum*, known as *R. praecox*, Early Gem, is now covered with flowers. This is a perfectly hardy plant but, unfortunately, blooms too early in this climate and the flowers are generally injured by frost. More valuable here is the north China *R. mucronulatum* which this year began to flower a little later than *R. dahuricum* and is still covered with its pale rose-colored flowers. It is a tall, hardy, deciduous-leaved shrub which has flowered freely in the Arboretum every spring for the last twenty years. The flowers open before the leaves appear and are not injured by spring frosts. This year they have been in good condition for nearly three weeks. In this climate this is the most valuable of the Rhododendrons and Azaleas which bloom in April.

**Early-flowering Magnolias.** The flower-buds and the flowers of the Japanese *Magnolia stellata*, *M. Kobus* and its variety *borealis*, and of

the Chinese *M. denudata*, more often called *M. conspicua*, and its hybrids, have been uninjured by winter cold or April frost and are blooming well this year with the exception of *M. Kobus* and its variety which, never very free with their flowers, are less prolific than usual this year. The plants of the Japanese *M. salicifolia*, which has never succeeded in the Arboretum by which it was first introduced into cultivation, appear to have been killed outright this winter.

**Corylopsis.** All the species of this genus of shrubs of the Witch Hazel Family cultivated in the Arboretum have survived the winter with little or no loss of wood, but the flower-buds of the Chinese *C. Veitchiana* and *C. Willmottae*, and of the Japanese *C. pauciflora* and *C. spicata* have been killed by the cold, and the only species which has flowered is *C. Gotoana* of the elevated region of central Japan. This is evidently the hardiest of the plants of this genus, and as it has now flowered in the Arboretum every spring for several years there is good reason to hope that we have here an important shrub for the decoration of northern gardens. The flowers are produced in drooping spikes and open before the leaves appear, as in the other species, and are of a delicate canary-yellow color and pleasantly fragrant. The best specimen in the Arboretum can be seen on the left-hand side of Hickory Path near Centre Street.

**Prinsepia sinensis** is a tall Chinese shrub with stem and branches armed with many spines, bright green leaves which unfold as early as those of any other plant in the Arboretum, and bright yellow flowers about two-thirds of an inch in diameter in few-flowered axillary clusters. The large specimen on the right-hand side of Hickory Path near Centre Street is now covered with flowers and nearly fully grown leaves. There can be no question of the hardiness of this shrub or of its ability to flower under any climatic conditions it may have to meet in Massachusetts. It will perhaps be found that it will prove to be as good a hedge plant as can be used in this part of the country. Unfortunately the Arboretum plants have not yet produced more than an occasional seed, and as *Prinsepia* is not easy to increase from cuttings it has remained exceedingly rare.

**Maddenia hypoleuca.** This interesting shrub which flowered last year in the Arboretum for the first time in America and was described in the Bulletin of May 8th, came through the winter without injury on the southern slope of Bussey Hill and was in full bloom this year on the 18th of April. It is related to the Rum or Choke Cherries, but the flowers are without petals and are not conspicuous.

**Cherries and Plums.** This is a good season for many of these plants. Among the Cherries *Prunus tomentosa* and the single-flowered form of *P. triloba* from northern China are already in bloom. The trees of the Sargent Cherry (*Prunus serrulata* var. *sachalinensis*) have never been more covered with their pink and rose-colored flowers, and the Japanese Spring Cherry (*P. subhirtella*) which has been described as the the most floriferous and perhaps the most delightful of the Japanese Cherries, is just opening its countless flower-buds.